



10th IEEE CPMT Symposium Japan (ICSJ2021)

(Formerly VLSI Packaging Workshop in Japan)



November 10-12, 2021
A Hybrid Event of On-site and Virtual Meetings
On-site Venue: Kyoto Univ. Clock Tower Centennial Hall, Kyoto, Japan



Advanced Program

Last update: September 22, 2021

November 10, 2021 (Wednesday)

	Hall I&II Remote discussion via interactive voice	Room III Remote discussion via chat	Room IV Remote discussion via chat
9:00	Registration		
10:30	Opening Remark (General Chair)		
10:45-11:30	Hall I & II Chairperson Eiji Higurashi (AIST) & Shigenori Aoki (LINTEC Corporation) IEEE EPS Special Speech I		
10:45	IEEE EPS Special Speech I: Package Design Challenges for 5G and B5G Sam Karikalan (Broadcom Inc.)		
11:30-12:15	Hall I & II Chairperson Eiji Higurashi (AIST) & Shigenori Aoki (LINTEC Corporation) 5G & Beyond 5G Special Speech I		
11:30-12:15	5G & Beyond 5G Special Speech I: AIP design for 5G: Evolution, Recent Results, and Impact on System-level Applications Alberto Valdes-Garcia (IBM Research)		
12:15	Lunch (free time)		
13:15-14:45	Session 1: Advanced Packaging/Emerging Technologies Chairperson Kenji Takahashi (AIST) Shoji Uegaki (E-ThermoGentek Co., Ltd.)	Session 2: Optical technology for High density, Mobile Fronthaul & Access Chairperson TBD TBD	Session 3: EMC ESD Chairperson TBD TBD
13:15	(Invited) TBD Katsuya Kikuchi (AIST)	i-04 25 Gbit/s LiFi with Dual Wavelength Emission, Eye-safe, Laser Based White Light Collimated and Fiber Delivered Light Sources James Raring ¹ , Paul Rudy ¹ , Changmin Lee ¹ , Mohamed Sufyan Islam ¹ , Adrian Sparks ¹ , Stefan Videv ² , Melvin McLaurin ¹ , Binith Shah, Harald Haas ² (1)KYOCERA SLD Laser, 2)University of Strathclyde	57 Novel Conductive Polymer Capacitor Jeff Cain, Craig Nies (AVX)
13:40	(Invited) TBD Chen-Chao Wang (ASE Group)	i-05 A Resonance-Suppressed EML TO-CAN Employing a Metal Plate Hayato Sano, Ryota Fujihara, Fumio Shoda, Seiki Nakamura, Masashi Binkai, Nobuo Ohata (Mitsubishi Electric Corporation)	62 Estimation of Electric Field Radiated from Wire Harness based on Approximation of Common-Mode Current Distribution using Asymmetric Dipole Antenna Hiroki Yamada, Jianqing Wang (Nagoya Institute of Technology)
14:05	Development of High-Density Organic Hybrid Substrate Using an Interconnect-Layer for Heterogeneous Integration Chia-Yu Peng, John Lau, CT Ko, Paul Lee, Eagle Lin, Henry Yang, Bruce Lin, Tim Xia (Unimicron)	4 Densely Integrated 1060nm 2D VCSEL Array for Space-division Multiplexing Toward Co-packaging Optics Transceivers Liang Dong ¹ , Xiaodong Gu ² , Mikito Yoshiki ¹ , Fumio Koyama ¹ (1)Tokyo Institute of Technology, 2)Ambition Photonics Inc.)	34 Transmission Line Pulse Method with Arbitrary Characteristic Impedance for Immunity Evaluation of ESD Protection Device Kyosuke TANAKA, Tohlu MATSUSHIMA, Yuki FUKUMOTO (Kyusyu Institute of Technology)
14:30	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition	Interview with the Authors (Discussion after the session)	Interview with the Authors (Discussion after the session)
14:45	Coffee break + Sponsor's Exhibition		
14:55-16:25	Session 4: Photonics session Chairperson TBD TBD	Session 5: Advanced Packaging for Power Module Chairperson Kiyokazu Yasuda (Osaka University) TBD	Session 6: Assembly and Bonding Techniques Chairperson Eiji Higurashi (AIST) Satomi Kawamoto (Namics Corporation)
14:55	(Invited) TBD Ignazio Piacentini (ficonTEC Service GmbH)	i-10 Challenges and Solutions in Electroless under Bump Metallization (UBM) - Meeting High Demands and Requirements in Wire Bonding and Soldering Application for Power Semiconductor Devices Stefan Pieper (Atotech)	22 LGA pre Bump Process Elimination Jui Ang Tan ¹ , Chong Seng Foo ¹ , Wen Jie Chen ¹ , Szu Han Tan ¹ , Shu Chao Sun ² , Ailsa Liang ² , Dennis Lidan Lee ² (1)Intel Products Malaysia, 2)Intel China Ltd.)
15:20	(Invited) TBD Geert Van Steenberge (Ghent University)	i-11 Improve Inductive Contact Failure Loss of IGBT Module Test Geert Van Steenberge (Nidtec)	25 Technologies for Power Device Packaging by using Solid Liquid Interdiffusion Bonding - SLID Mario Baum ¹ , Joerg Froemel ³ , Christian Hofmann ¹ , Maik Wiemer ¹ , Karla Hiller ² , Harald Kuhn ¹ (1)Fraunhofer Institute for Electronic Nanosystems ENAS, 2)Chemnitz University of Technology, 3) Advanced Institute for Materials Research AIMR, 4)Tohoku University)
15:45	(Invited) Multi-Gigabit/s LiFi Networking for 6G Harald Haas (University of Edinburgh)	i-13	43 Silver Sintering Technology based on Induction Heating for Chip Level Bbonding Christian Hofmann ¹ , Mario Baum ¹ , Martin Kroll ² , Sushant Panhale ² , Patrick Rochala ² , Maulik Satwara, Kiyoshi Oi ³ , Kei Murayama ³ (1)Fraunhofer Institute for Electronic Nano Systems, 2)Chemnitz University of Technology, 3)SHINKO Electric Industries Co., Ltd.)
16:10	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition	Interview with the Authors (Discussion after the session)	Interview with the Authors (Discussion after the session)
16:25	Coffee break + Sponsor's Exhibition		
16:35-18:25	Hall I & II Chairperson Hideyuki Nasu (Furukawa Electric Co., Ltd) & Takaaki Ishigure (Keio University) Plenary Speech I & II		
16:35	Plenary Speech I: TBD Martin Schell (Fraunhofer Heinrich-Hertz-Institute)		
17:30	Plenary Speech II: Optical Systems and Technologies for Future Mobile Networks Roberto Sabella (Ericsson)		
18:25	Welcome Reception		
20:25	Close		

November 11, 2021 (Thursday)

		Hall I&II	Room III Registration	Room IV
9:00				
9:15-10:00	Hall I & II Chairperson Kazuyuki Nakagawa (Renesas Electronics Corporation) & Yutaka Uematsu (Hitachi, Ltd.) 5G & Beyond 5G Special Speech II			
9:15	5G & Beyond 5G Special Speech II: TBD Robert Gee (Continental)			S-03
10:00-10:45	Hall I & II Chairperson Kazuyuki Nakagawa (Renesas Electronics Corporation) & Yutaka Uematsu (Hitachi, Ltd.) 5G & Beyond 5G Special Speech III			
10:00	5G & Beyond 5G Special Speech III: 5G Evolution and 6G Takehiro Nakamura (NTT DOCOMO, INC.)			S-05
10:45	Coffee break + Sponsor's Exhibition			
11:00-12:30	Session 7: Automotive Sensor Systems Chairperson Yutaka Uematsu (Hitachi, Ltd.) Hajime Kimura (Nissan Motor Co., Ltd.)	Session 8: Machine Learning/ Wafer Scale Packaging Chairperson Taiji Sakai (Fujitsu Interconnect Technologies Ltd.) TBD	Session 9: Material Analysis Techniques Chairperson Shinya Takyu (LINTEC Corporation) Naoko Araki (Daicel Corporation)	
11:00	(Invited) TBD Toshio Ito (Shibaura Institute of Technology)	i-09 Novel Approach for Machine Learning with Extra Low Energy and Very Light Hardware Kanji Otsuka, Koichi Sato, Yutaka Akiyama, Kaoru Hashimoto, Koshi Sato (Meisei University)	7 Electrochemical Analysis of Surface Oxide Layers on Copper Surface in Microelectronics Chi-Hsuan LIN ¹ , Wei-Chen Huang ¹ , Yu-Cheng Ke ¹ , Jenn-Ming Song ¹ , Kiyokazu Yasuda ² (1)National Chung Hsing University 2)Osaka University	56
11:25	Feature Detection Based on Virtual Gradient Using Sensor Fusion for Low-resolution 3D LiDAR Shuncong Shen, Mai Saito, Toshio Ito (Shibaura Institute of Technology)	44 Precise Thixotropy Control of Bump Support Film for WLCSF Keisuke Shinomiya, Naoya Saiki, Yosuke Sato, Tomotaka Morishita, Reina Kainuma (LINTEC Corporation)	16 Measurement of Poisson's Ratio of Resin Materials Hiroshi Yamaguchi, Toshiaki Enomoto, Takayuki Fujita (Namics Corporation)	42
11:50	Diagnosis Method of Abnormal Positions in Bidirectional Communication Channel by Using Adaptive Decision Feedback Equalizer Soshi Shimomura, Yasuhiro Ikeda, Yutaka Uematsu (Hitachi Ltd.)	14 Evaluation of Wafer Bond Strength under Vacuum Kai Takeuchi, Tadatomo Suga (Meisei University)	20	
12:15	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition	Interview with the Authors (Discussion after the session)	Interview with the Authors (Discussion after the session)	
12:30	Lunch (free time) & Sponser seminar			
13:30-15:00	Session 10: Bioelectronics-1 Chairperson Beomjoon Kim (The University of Tokyo) TBD	Session 11: Automotive SI/PI/EMC Chairperson Toshio Ito (Shibaura Institute of Technology) TBD	Session 12: Dielectric Materials for 5G and 3D Package Chairperson Naoko Araki (Daicel Corporation) Eiji Higurashi (AIST)	
13:30	(Invited) Multi-modal Thin-Film-Transistor Bio-sensing Platforms for Bio-medical Investigations Agnes Tixier-Mita (University of Tokyo)	i-01 Practical Simulation Methods Considering Characteristic Variations of Wires for CISPR 25 Conducted Emission Hidetake Sugo ¹ , Yuta Sarai, Bibhu ¹ , P Nayak ² , Harikiran Muniganti ² , Dipanjan Gope ² , Dipanjan Gope ² , Takahiro Tsuda ¹ (1)DENSO CORPORATION, 2)Sinyo Technology Pvt. Ltd., 3)Indian Institute of Science	8 Development of Newly Low-dielectric Organic Substrate Material for Millimeter Radar Chie Chikara, Satoshi Yoshiura, Satoshi Kajita, Koji Fujikawa, Taishi Imazato, Tadashi Nagasawa (KYOCERA Corporation)	39
13:55	(Invited) Biologically Inspired Ultrathin Array Cameras Ki-Hun Jeong (KAIST)	i-02 Abnormal-state-discrimination Method for In-vehicle Communication Channel with Power over Coax Circuit Yutaka Uematsu ¹ , Soshi Shimomura ¹ , Yasuhiro Ikeda ¹ , Hidetatsu Yamamoto ² , Hideyuki Sakamoto ¹ (1)Hitachi Ltd., 2)Hitachi Astemo, Ltd.,)	15 Study of Atomic Layer Deposition of hafnium oxide as an insulation layer on Cu for potential flip chip integration. Alaric Yohei Kawai, Shingo Kataza, Shuichi Shoji, Jun Mizuno (Waseda University)	10
14:20	Functional Interfaces for an Openable Artificial Intestinal Tract Device as an Organ-on-a-chip Shingo Ishibashi, Yuki Inoue, Shiho Shimizu, Satoshi Konishi (Ritsumeikan University)	9	Characterization of Low Loss Dielectric Materials for 5G Applications Tzu Nien Lee, John Lau, CT Ko, Tim Xia, Eagle Lin, Henry Yang, Bruce Lin, Tony Peng (Unimicron)	5
14:45	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition	Interview with the Authors (Discussion after the session)	Interview with the Authors (Discussion after the session)	
15:00	Coffee break + Sponsor's Exhibition			
15:10-16:05	Hall I & II Chairperson Beomjoon Kim (The University of Tokyo) & Shinya Takyu (LINTEC Corporation) Plenary Speech III			
15:10	Plenary Speech III: TBD Avi Baum (Hailo)			P-04
16:05-16:50	Hall I & II Chairperson Beomjoon Kim (The University of Tokyo) & Shinya Takyu (LINTEC Corporation) IEEE EPS Special Speech II			
16:05	IEEE EPS Special Speech II: Modelling & Simulation: An underpinning technology for Heterogeneous Integration Chris Bailey (University of Greenwich)			S-01
16:50	Coffee break + Sponsor's Exhibition			
17:00-18:30	Early Career Researcher's (ECR) Session - On-demand viewing available			
	On-site/ on-demand poster presentation		On-demand poster presentation only	
	Tapered Pillar on Optical Fiber Facet Fabricated by UV Curable Resin for High Efficiency Coupling to Silicon Waveguides Taiga Kurisawa, Yoshiki Kamiura, Chiemi Fujikawa, Osamu Mikami (Tokai University)	11 3D Metal Printed Deformed Elliptical Cavity Bandpass Filter with an Additional Plate Povilas Vaitukaitis, Kenneth Nai, Jiayu Rao, Jiasheng Hong (Heriot-Watt University)	35 Development of the h-BN Manufacturing Process for 3D-LSI Masashi Yokoi, Satoko Shinkai, Satoshi Matsumoto (Kyushu Institute of Technology)	17
	Application of Polymer Microlens with Pillar for High Efficiency Coupling between Single Mode Fiber and SiPh Chip Yoshiki Kamiura, Taiga Kurisawa, Chiemi Fujikawa, Osamu Mikami (Tokai University)	12 Efficient Electro-optic Modulation in Mode-confined Silicon and Polymer Hybrid Modulator Jiawei Mao, Hiromu Sato, Shiyoshi Yokoyama (Kyushu University)	41 3D Metal Printed Corrugated Waveguide Antenna Array With High Gain and Enhanced Bandwidth Jiayu Rao ¹ , Kenneth Nai ² , Povilas Vaitukitis ¹ , Jiasheng Hong ¹ (1)Heriot-Watt University, 2)Renishaw PLC	32
	Connection Characteristics of Hollow-Core Fiber Connector Toshiki Maejima ¹ , Hideki Kamitsuna ² , Ryuta Matsuda ¹ , Ryo Nagase ¹ (1)Chiba Institute of Technology, 2)YOKOWO CO., LTD.)	13 Interpolation Method for Sparse Point Cloud at Long Distance Using Sensor Fusion with LiDAR and Camera Mai Saito, Shuncong Shen, Toshio Ito (Shibaura Institute of Technology)	48 Modeling of Polarization Rotation Based All Optical Logic Switch Using Ring Resonator GAURAV KUMAR BHARTI, RAMESH KUMAR SONKAR (Indian Institute of Technology)	47
	Demonstration of Flexible Polyimide Fibers for Dense Optical Packaging Yuki Okada ¹ , Taro Itatani ² , Yoshinobu Okano ¹ , Takeru Amano ² , Satoshi Suda ² (1)Tokyo City University, 2)AIST)	18	Modification of Polyurethane-based Binder for Stabilizing Electrical Conductivity of Silver-filled Stretchable Printed Wires During Cyclic Tensions Kaito Oodzutumi, Hikaru Watanabe, Rena Ohshima, Masahiro Inoue (Gunma University)	52
	Narrow-bandpass Filter using Orthogonally Propagating Guided-mode Resonance with Doubly Periodic Grating Zhiyu Yang ¹ , Ryo Asai ¹ , Junichi Inoue ¹ , Kenji Kintaka ² , Shogo Ura ¹ (1)Kyoto Institute of Technology, 2)AIST)	23	Electrical Conductivity of Air-curable Electrically Conductive Adhesive Containing Copper Fillers Using Mixed Surfactants Yukari Matsunami, Daisuke Otajima, Kenta Kawarai, Yuki Saito, Masahiro Inoue (Gunma University)	54
18:30	Close			

November 12, 2021 (Friday)

Hall I&II		Room III	Room IV
9:00		Registration	
9:15-10:10	Hall I & II Chair person Kiyokazu Yasuda (Osaka University) & Taiji Sakai (Fujitsu Interconnect Technologies Ltd.) Plenary Speech IV		
9:15	Plenary Speech IV: Heterogeneous Integration for HPC Applications Driven by 5G and AI John H. Lau (Unimicron)		
10:10	Coffee break + Sponsor's Exhibition		
10:25-12:20	Session 13: Wide-gap semiconductor power devices and their heat dissipation methods Chairperson Masafumi Yokoyama (SCIOCS) Kentaro Kaneko (Kyoto Univ.)	Session 14: Optical Interconnect in Data Center Chairperson TBD TBD	
10:25	(Invited) Development of High Thermal Conductive Ceramics and High Thermal Conductive Resins Using Fibrous Aluminum Nitride Toru Ujihara (Nagoya University)	I-08 Optical Interconnect Ecosystems and Challenges in Co-Packaged Optics Takuya Ninomiya ¹ , Heng Loong Lee ² , Song Li ³ , Gang Hsu ³ , Richard Pitwor ⁴ (1)Senko Advanced Components, Inc., 2)Senko Advanced Components (HK), Ltd., 3)Senko Advanced Components (Shenzhen), Ltd., 4)Resolute Photonics, Ltd.)	2
10:50	Evaluation of Half-Bridge Power Module with POL-kW Shingo Hayashibe ¹ , Kei Murayama ¹ , Koji Bando ¹ , Hirotsugu Suzuki ² , Takanori Sugita ² (1)SHINKO ELECTRIC INDUSTRIES CO., LTD., 2)HeadSpring Inc.,)	38 Recent Advances for High Speed Optical Interconnects for Datacom Links Yi Sun, Robert Lingle (OFS Fitel LLC,)	36
11:15	Study on deep traps in α -Ga ₂ O ₃ by photocapacitance method and deep level optical spectroscopy Hitoshi Takane ¹ , Kentaro Kaneko ¹ , Takashi Shinoh ² , Shizuo Fujita ¹ (1)Kyoto University, 2)FLOSFIA INC.,	6 Reliability and Bend Loss of Optical Fibers in Tight Bend Applications Scott Bickham, G. Scott Glaesemann, Yin Shu, Garth Scannell (Corning Research and Development Corporation)	26
11:40	(Invited) Creating Low Thermal Resistance Interfaces in Wide Bandgap Semiconductors Through Bonding Samuel Graham (Georgia Institute of Technology)	I-12 High-efficiency optical coupling between VCSEL and 90-degree-bent Graded-Index Core Polymer Waveguide with Numeral Aperture Optimization Naohiro Kohmu ¹ , Maho Ishii ² , Takaaki Ishigure ² (1)Hitachi, Ltd., 2)Keio University,	24
12:05	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition	Interview with the Authors (Discussion after the session)	
12:20	Coffee break + Sponsor's Exhibition		
13:20-14:50	Session 15: New Process and Materials Chairperson Kei Murayama (Shinko Electric Industries Co., Ltd.) Shinya Takyu (LINTEC Corporation)	Session 16: Bioelectronics-2 Chairperson Shigenori Aoki (LINTEC Corporation) TBD	
13:20	(Invited) Advanced Packaging Materials for 5G Applications Dongshun Bai (Brewer Science, Inc)	I-07 Optical Microneedles Lens Array-combined unit patch: New application tool for photothermal therapy Kotaro Shobayashi, Xiaobin Wu, Jongho Park, Beomjoon Kim (The University of Tokyo)	28
13:45	(Invited) LCP Technology in 5G era- MetroCirc Takashi Noma (Murata Manufacturing Co., Ltd.)	I-06 A Rapid COVID-19 Diagnostic Device Integrating Porous Microneedles and the Paper-based Immunoassay Biosensor Leilei Bao, Jongho Park, Soonjin Shim, Misako Yoneda, Chieko Kai, Beomjoon Kim (The University of Tokyo)	30
14:10	Control of Electrical Behavior of Stretchable Films Printed Using Electrically Conductive Pastes During Cyclic Tensions Masahiro Inoue, Hikaru Watanabe, Kaito Oodzutsumi (Gunma University)	60	
14:35	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition	Interview with the Authors (Discussion after the session)	
14:50	Coffee break + Sponsor's Exhibition		
15:00-16:55	Session 17: Signal Integrity Chairperson Kazuyuki Nakagawa (Renesas Electronics Corp.) Yasuhiro Ikeda (Hitachi, Ltd.)	Session 18: Novel Polymer Technology for Advanced Optical Components Chairperson TBD TBD	
15:00	(Invited) Improvements in measurement accuracy of on-wafer measurements from millimeter-wave to terahertz frequencies Ryo Sakamaki (AIST)	I-03 Design and Fabrication of Y-branched Polymer Waveguide based Optical Coupler Ryosuke Hatai, Hiroki Hama, Takaaki Ishigure (Keio University)	19
15:25	Effect of Surface Treatment of Transmission Line on Frequency Characteristics Junpei Miike, Akira Kon, Makoto Miyoshi, Takatoshi Yagisawa (Fujitsu Optical Components Limited)	29 3-Dimensional Single-mode Over-Crossing Polymer Waveguides for On-board Optical Circuitry MD Omar Faruk Rasel ¹ , Takaaki Ishigure ² (1)Khulna University, 2)Keio University)	21
15:50	The Electrical Analysis on Ultra High Density IO Fan-Out Design Po-I Wu, Chen-Chao Wang, Chih-Yi Huang, Hung-Chun Kuo, Ming-Fong Jhong (Advanced Semiconductor Engineering, Inc.)	33 Fabrication of the electro-optic polymer modulator for O-band Intra-datacenter communications Alisa Bannaron, Hiromu Sato, Shiyoshi Yokoyama (Kyushu University)	37
16:15	Noise Reduction Termination for RFI Induced Channel Resonance using Common-mode Choke and Differential Signal Balancer Masaaki Kameya, Eishi Gofuku, Kazuyuki Nakamura (Kyushu Institute of Technology)	50 O-band Silicon-polymer Hybrid EO Modulator Hiromu Sato, Alisa Bannaron, Shiyoshi Yokoyama (Kyushu University)	40
16:40	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition	Interview with the Authors (Discussion after the session)	
16:55	Close		